

**What is claimed is:**

- 1 1. A method for vibration damping in a machine tool comprising at least one hydrostatic guide (8) including at least one pocket (1) for supporting a first component (9) on a second component (10), through which an oil flow is passed with a predetermined volume flow and at a predetermined pressure and exits through at least one gap (3), characterized in that in response to the loads arising and for achieving a constant width of gap (3), the oil flow through said gap (3) is regulated.
- 1 2. The method according to claim 1, characterized in that the oil flow in said pocket (1) is regulated.
- 1 3. The method according to claim 1, characterized in that the oil volume in said pocket (1) is regulated.
- 1 4. The method according to claim 1, characterized in that as the measured variable the oil pressure in said pocket (1) is taken as a basis.
- 1 5. The method according to claim 1, characterized in that as the measured variable the width of said gap (3) is taken as a basis.
- 1 6. The method according to claim 1, characterized in that as input quantities accelerations of components (9, 10) are taken into account.
- 1 7. The method according to claim 6, characterized in that the loads of the hydrostatic guide are pre-calculated on the basis of the accelerations resulting from the movements of components and/or workpieces, and that in response

4 to said values the oil pressure and/or oil flow through the gap (3) that is  
5 required for preventing changes in the width of the gap is pre-calculated.

1 8. The method according to claim 1, characterized in that the vibration behavior  
2 of the machine tool itself is taken into account by predetermining and  
3 correspondingly regulating the oil pressure in said pocket (1) or the oil flow  
4 through said gap (3) for preventing changes in the width of said gap.

1 9. The method according to claim 1, characterized in that the oil pressure and  
2 the width of said gap (3) of a plurality of pockets (1) of a plurality of  
3 hydrostatic guides are regulated by means of a single control unit to support  
4 components and/or workpieces in a highly stiff manner.

1 10. The method according to claim 9, characterized in that the oil pressure and  
2 the width of said gap (3) are regulated at the same time with a control unit for  
3 executing machining programs of said machine tool.

1 11. The method according to claim 9, characterized in that the control of the oil  
2 pressure and of the width of said gap (3) compensates deformations arising in  
3 components of the machine tool.

1 12. An apparatus for performing the method according to claim 1, comprising a  
2 supply line (6) connected to the pocket (1), characterized by a control valve  
3 (4) arranged in said supply line (6).

1 13. The apparatus according to claim 12, characterized by a pressure reservoir  
2 (5) arranged upstream of said control valve (4).

- 1 14. The apparatus for performing the method according to claim 1, comprising a  
2 supply line (6) connected to said pocket (1), characterized by a means  
3 arranged in the area of said pocket (1) for changing the volume of said pocket  
4 (1).
  
- 1 15. The apparatus according to claim 14, characterized in that said means  
2 comprises a piston-cylinder unit.
  
- 1 16. The apparatus according to claim 14, characterized in that said means  
2 comprises at least one piezoelectric element (19).
  
- 1 17. A method according to claim 1, characterized in that the oil pressure and/or  
2 the oil flow and/or the oil volume of a plurality of pockets (1) of a plurality of  
3 hydrostatic guides (8) of a machine tool are regulated by means of a joint  
4 control unit.
  
- 1 18. The method according to claim 17, characterized in that said control unit  
2 controls the individual pockets (1) independently of one another.
  
- 1 19. The method according to claim 17, characterized in that the control unit for the  
2 active vibration damping of components of the machine tool processes  
3 vibrations arising in the components and/or workpieces as input quantities.
  
- 1 20. The method according to claim 19, characterized in that the vibrations of the  
2 components are vibrations excited outside the components.
  
- 1 21. The method according to claim 19, characterized in that the vibrations of the  
2 components are the natural vibrations thereof.

- 1 22. The method according to claim 19, characterized in that the vibrations arising  
2 are measured.
- 1 23. The method according to claim 19, characterized in that the vibrations arising  
2 are calculated.
- 1 24. The method according to claim 17, characterized in that the control unit  
2 processes and compensates dimensional deviations of said guides (8) as  
3 input quantities.
- 1 25. The method according to claim 24, characterized in that the dimensional-  
2 deviations are measured and the measured values are supplied to the control  
3 unit.
- 1 26. The method according to claim 25, characterized in that the dimensional  
2 deviations are measured in advance, stored in a memory and the measured  
3 values are supplied to the control unit during operation of the machine tool.
- 1 27. The method according to claim 24, characterized in that the dimensional  
2 deviations are calculated.